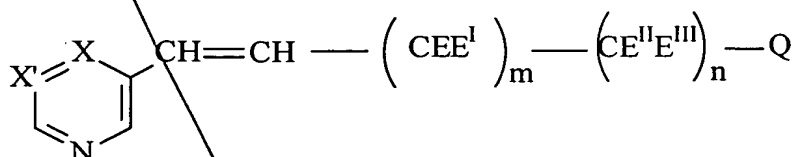


**THAT WHICH IS CLAIMED IS:**

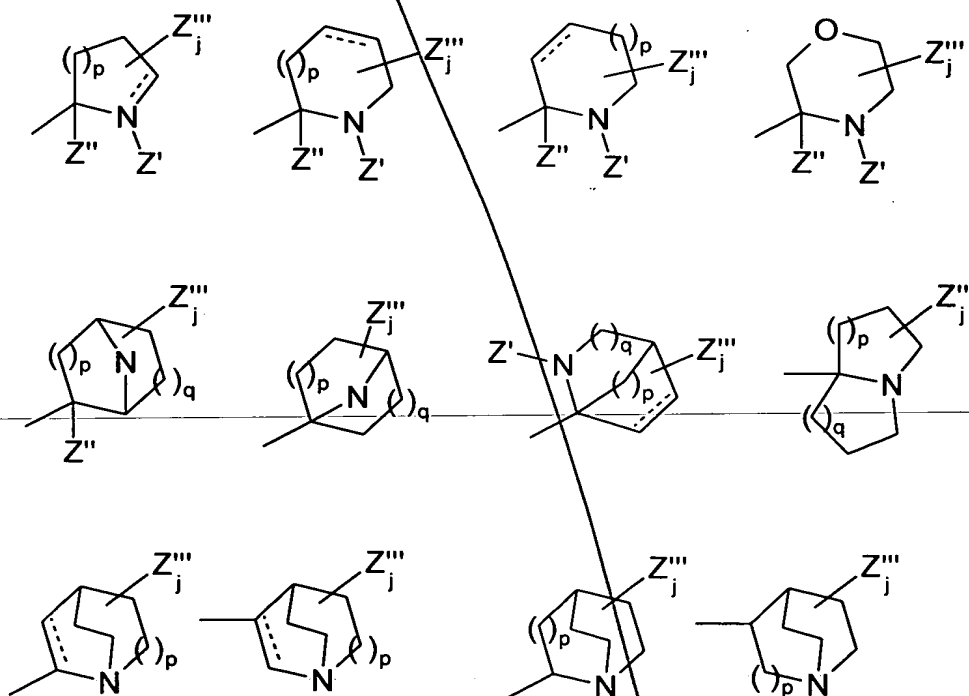
1. A compound of the formula:



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where each of X and X' are individually nitrogen, nitrogen bonded to oxygen or carbon bonded to a substituent species characterized as having a sigma m value between about -0.3 and about 0.75; m is an integer and n is an integer such that the sum of m plus n is 0, 1, 2 or 3; E, E<sup>I</sup>, E<sup>II</sup> and E<sup>III</sup> individually represent hydrogen or a suitable non-hydrogen substituent; and Q is selected from:

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where Z' represents hydrogen or lower alkyl, acyl, alkoxycarbonyl, or aryloxycarbonyl; Z'' is hydrogen or lower alkyl; and Z''' is a non-hydrogen

substituent; the dotted line indicates a carbon-carbon single bond or a carbon-carbon double bond; p is 0, 1 or 2; q is 0, 1, 2 or 3; and j is an integer from 0 to 3.

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A1
5. 2. The compound of Claim 1 wherein X' is OCx where Cx is selected from the group consisting of aryl, substituted aryl, heteroaryl, substituted heteroaryl, non-aromatic heterocyclyl, substituted non-aromatic heterocyclyl, non-aromatic heterocyclylalkyl and substituted non-aromatic heterocyclylalkyl.

- 10 3. The compound of Claim 2 wherein Cx is phenyl or substituted phenyl.

4. The compound of Claim 1 wherein j is 0.

5. The compound of Claim 1 wherein q is 0 or 1.

6. The compound of Claim 1 wherein Z' is hydrogen or methyl and Z'' is hydrogen.

7. The compound of Claim 1 has an (E) geometry.

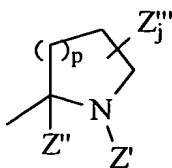
8. The compound of Claim 1 wherein m and/or n are 0.

9. The compound of Claim 1 wherein m is 1 and n is 0, and E is hydrogen and E<sup>I</sup> is methyl.

10. The compound of Claim 1 wherein m is 1 and n is 1, and E, E<sup>I</sup> and E<sup>II</sup> each are hydrogen and E<sup>III</sup> is methyl.

11. The compound of Claim 1 wherein the sum of m plus n is 1 or 2.

12. The compound of Claim 1 wherein Q is



13. The compound of Claim 1, (S)-(E)-3(2-pyrrolidin-2-ylvinyl) pyridine.

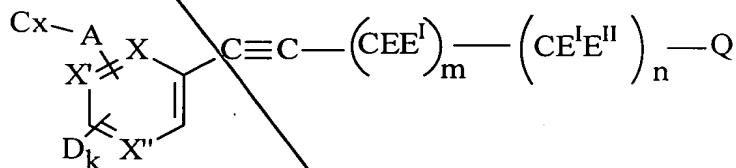
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14. The compound of Claim 1, (E)-(S)-3-(4-hydroxyphenoxy)-5-(pyrrolidin-2-ylvinyl)pyridine.

15. The compound of Claim 1, (E,S)-3-cyclopentyloxy-5-(pyrrolidin-2-ylvinyl)pyridine.

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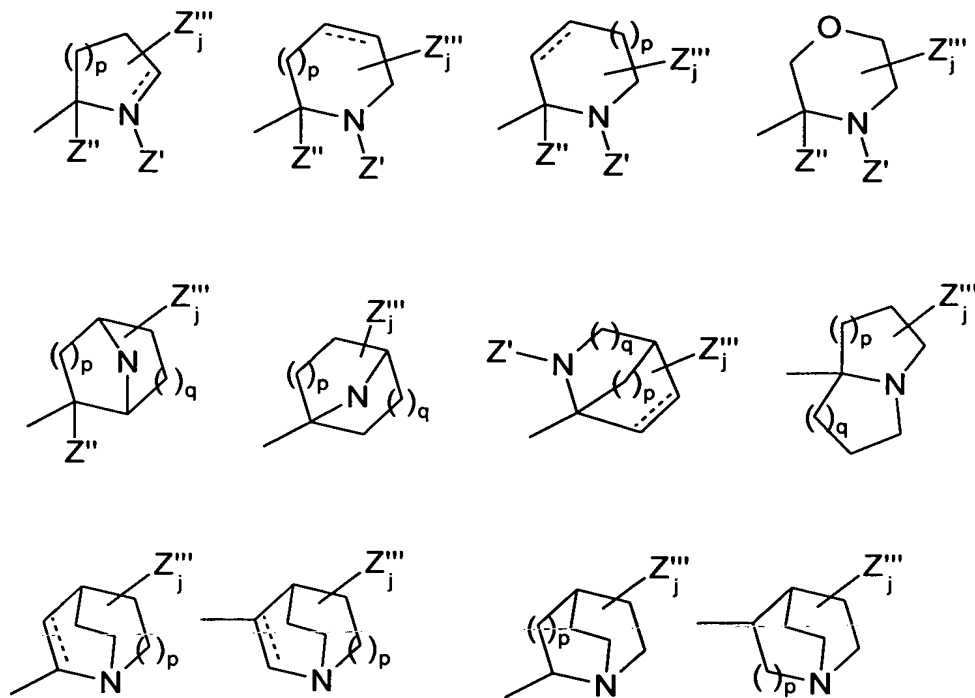
16. A compound of the formula:



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where each of X, X' and X'' are individually nitrogen, nitrogen bonded to oxygen or carbon bonded to a substituent species characterized as having a sigma m value between about -0.3 and about 0.75; A is O, C=O or a covalent bond; D is a suitable non-hydrogen substituent species characterized as having a sigma m value between about -0.3 and about 0.75; k is 0, 1 or 2; Cx is selected from a group consisting of aryl, substituted aryl, heteroaryl, substituted heteroaryl, non-aromatic heterocyclyl, substituted non-aromatic heterocyclyl, non-aromatic heterocyclylalkyl and substituted non-aromatic hetero-cyclylalkyl; m is an integer and n is an integer such that the sum of m plus n is 0, 1, 2 or 3; E, E<sup>I</sup>, E<sup>II</sup> and E<sup>III</sup> individually represent hydrogen or a suitable non-hydrogen substituent; and Q is selected from:

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where  $Z'$  represents hydrogen or lower alkyl, acyl, alkoxycarbonyl, or aryloxycarbonyl;  $Z''$  is hydrogen or lower alkyl; and  $Z'''$  is a non-hydrogen substituent; the dotted line indicates a carbon-carbon single bond or a carbon-carbon double bond;  $p$  is 0, 1 or 2;  $q$  is 0, 1, 2 or 3; and  $j$  is an integer from 0 to 3.

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17. The compound of Claim 16 wherein  $X''$  is nitrogen bonded to oxygen.

18. The compound of Claim 16 wherein  $X''$  is nitrogen.

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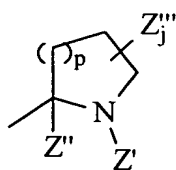
19. The compound of Claim 16 wherein 1 or 2 of  $X$ ,  $X'$  and  $X''$  are nitrogen or nitrogen bonded to oxygen.

20. The compound of Claim 16 wherein one of  $X$ ,  $X'$  and  $X''$  is nitrogen bonded to oxygen.

21. The compound of Claim 16 wherein both X' and X'' are nitrogen.

Sub A<sup>3</sup> 5 22. The compound of Claim 16 wherein X' is OCy where Cy is selected from the group consisting of aryl, substituted aryl, heteroaryl, substituted heteroaryl, non-aromatic heterocyclyl, substituted non-aromatic heterocyclyl, non-aromatic heterocyclalkyl and substituted non-aromatic hetero-cyclalkyl.

23. The compound of Claim 16 wherein Q is

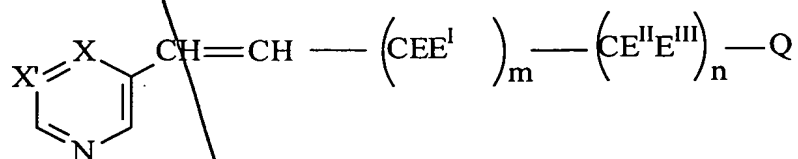


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Sub A<sup>4</sup> 15 24. The compound of Claim 16 selected from the group consisting of (S)-5-(2-pyrrolidin-2-ylethynyl)pyrimidine, (R)-5-(2-pyrrolidin-2-ylethynyl)pyrimidine, (S)-5-(2-pyrrolidin-2-ylethynyl)pyridine, (R)-5-(2-pyrrolidin-2-ylethynyl)pyridine, (S)-3-isopropoxy-5-(pyrrolidin-2-ylethynyl)pyridine, (S)-3-phenyl-5-(pyrrolidin-2-ylethynyl)pyridine, (S)-3-(phenoxyphenyl)-5-(pyrrolidin-2-ylethynyl)pyridine, (S)-3-(4-methoxyphenoxy)-5-(pyrrolidin-2-ylethynyl)pyridine, (S)-3-(4-hydroxyphenoxy)-5-(pyrrolidin-2-ylethynyl)pyridine, (S)-3-cyclopentyloxy-5-(pyrrolidin-2-ylethynyl)pyridine, (S)-3-cyclohexyloxy-5-(pyrrolidin-2-ylethynyl)pyridine, (S)-3-(4-(pyrrolidine-1-sulfonyl)phenoxy)-5-(pyrrolidin-2-ylethynyl)pyridine, (S)-3-(3-pyridyloxy)-5-(pyrrolidin-2-ylethynyl)pyridine, (S)-3-(pyrrolidin-2-ylethynyl)-5-(tetrahydropyran-4-yloxy)pyridine and (S)-3-(3,5-dihydroxy)phenoxy-5-(pyrrolidin-2-ylethynyl)pyridine.

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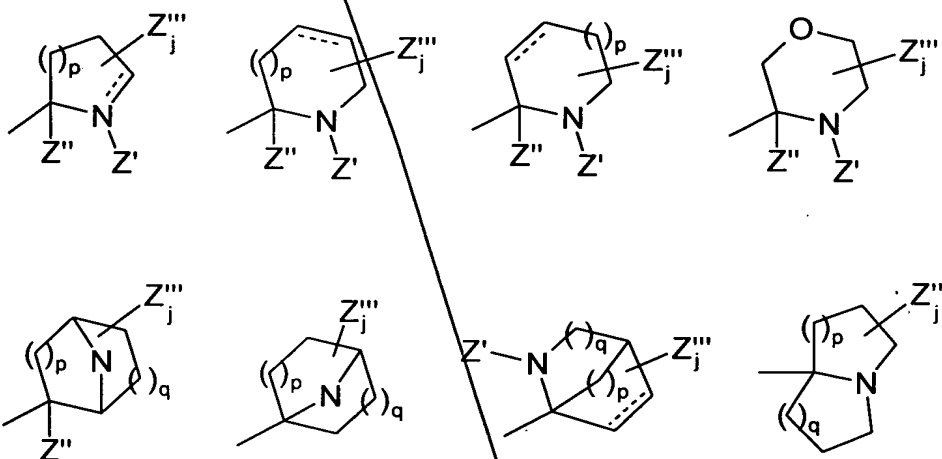
25. A pharmaceutical composition incorporating a compound of:



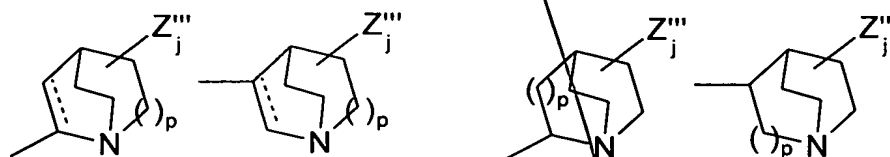
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where each of X and X' are individually nitrogen, nitrogen bonded to oxygen or carbon bonded to a substituent species characterized as having a sigma m value between about -0.3 and about 0.75; m is an integer and n is an integer such that the sum of m plus n is 0, 1, 2 or 3; E, E<sup>I</sup>, E<sup>II</sup> and E<sup>III</sup> individually represent hydrogen or a suitable non-hydrogen substituent; and Q is selected from:



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where Z' represents hydrogen or lower alkyl, acyl, alkoxycarbonyl, or aryloxycarbonyl; Z'' is hydrogen or lower alkyl; and Z''' is a non-hydrogen substituent; the dotted line indicates a carbon-carbon single bond or a carbon-

carbon double bond; p is 0, 1 or 2; q is 0, 1, 2 or 3; and j is an integer from 0 to 3.

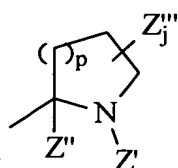
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- 5 26. The pharmaceutical composition of Claim 25 wherein X' is OCx where Cx is selected from the group consisting of aryl, substituted aryl, heteroaryl, substituted heteroaryl, non-aromatic heterocyclyl, substituted non-aromatic heterocyclyl, non-aromatic heterocyclylalkyl and substituted non-aromatic heterocyclylalkyl.
- 10 27. The pharmaceutical composition of Claim 26 wherein Cx is phenyl or substituted phenyl.
- 
28. The pharmaceutical composition of Claim 25 wherein j is 0.
- 15 29. The pharmaceutical composition of Claim 25 wherein q is 0 or 1.
30. The pharmaceutical composition of Claim 25 wherein Z' is hydrogen or methyl and Z'' is hydrogen.
- 20 31. The pharmaceutical composition of Claim 25 has an (E) geometry .
32. The pharmaceutical composition of Claim 25 wherein all of E, E<sup>I</sup>, E<sup>II</sup> and E<sup>III</sup> individually are hydrogen.
- 
- 25 33. The pharmaceutical composition of Claim 25 wherein m and/or n are 0.
34. The pharmaceutical composition of Claim 25 wherein m is 1 and n is 0, and E is hydrogen and E<sup>I</sup> is methyl.
- 30 35. The pharmaceutical composition of Claim 25 wherein m is 1 and n is 1, and E, E<sup>I</sup> and E<sup>II</sup> each are hydrogen and E<sup>III</sup> is methyl.

36. The pharmaceutical composition of Claim 25 wherein the sum of m plus n is 1 or 2.

37. The pharmaceutical composition of Claim 25 wherein Q is

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38. The pharmaceutical composition of Claim 25 wherein the compound is, (S)-(E)-3(2-pyrrolidin-2-ylvinyl) pyridine.

39. The pharmaceutical composition of Claim 25 wherein the compound is, (E)-(S)-3-(4-hydroxyphenoxy)-5-(pyrrolidin-2-ylvinyl)pyridine.

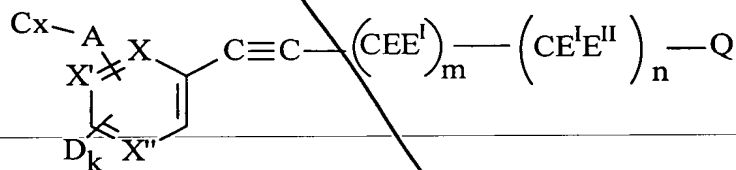
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40. The pharmaceutical composition of Claim 25 wherein the compound is, (E,S)-3-cyclopentyloxy-5-(pyrrolidin-2-ylvinyl)pyridine.

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41. A pharmaceutical composition incorporating a compound of the formula:

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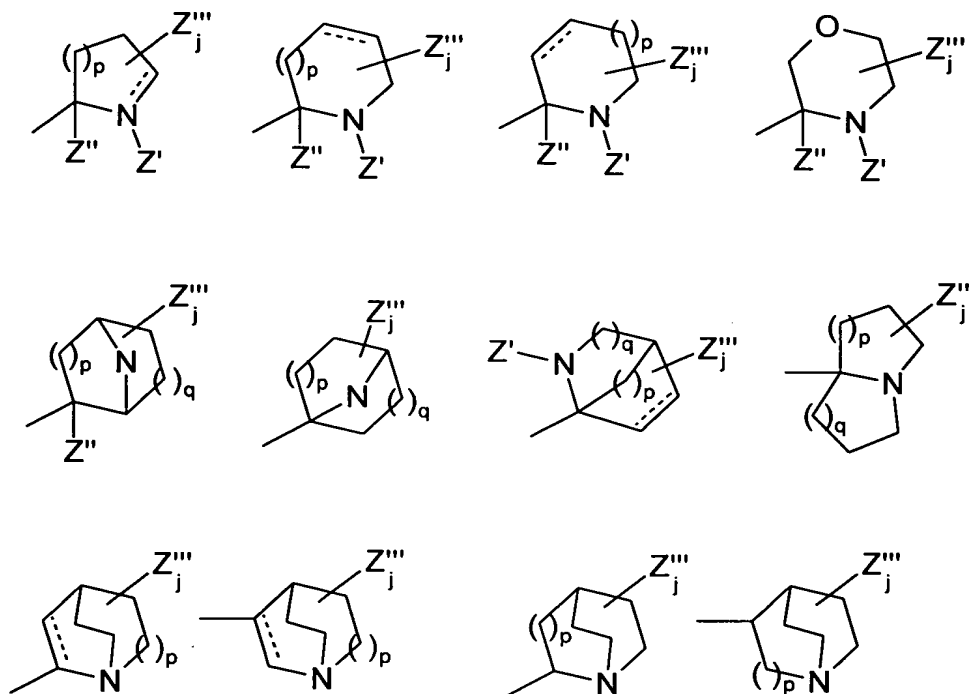


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where each of X, X' and X'' are individually nitrogen, nitrogen bonded to oxygen or carbon bonded to a substituent species characterized as having a sigma m value between about -0.3 and about 0.75; A is O, C=O or a covalent bond; D is a suitable non-hydrogen substituent species characterized as having a sigma m value between about -0.3 and about 0.75; k is 0, 1 or 2; Cx is selected from a group consisting of aryl, substituted aryl, heteroaryl, substituted heteroaryl, non-aromatic heterocyclyl, substituted non-aromatic heterocyclyl, non-aromatic heterocyclylalkyl and substituted non-aromatic



hetero-cyclylalkyl; m is an integer and n is an integer such that the sum of m plus n is 0, 1, 2 or 3; E, E<sup>I</sup>, E<sup>II</sup> and E<sup>III</sup> individually represent hydrogen or a suitable non-hydrogen substituent; and Q is selected from:



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where Z' represents hydrogen or lower alkyl, acyl, alkoxycarbonyl, or aryloxycarbonyl; Z'' is hydrogen or lower alkyl; and Z''' is a non-hydrogen substituent; the dotted line indicates a carbon-carbon single bond or a carbon-carbon double bond; p is 0, 1 or 2; q is 0, 1, 2 or 3; and j is an integer from 0 to

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42. The pharmaceutical composition of Claim 41 wherein X" is nitrogen bonded to oxygen.

15 43. The pharmaceutical composition of Claim 41 wherein X" is nitrogen.

44. The pharmaceutical composition of Claim 41 wherein 1 or 2 of X, X' and X'' are nitrogen or nitrogen bonded to oxygen.

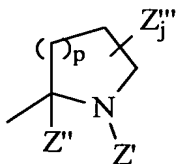
45. The pharmaceutical composition of Claim 41 wherein one of X, X' and X'' is nitrogen bonded to oxygen.

46. The pharmaceutical composition of Claim 41 wherein X'' is nitrogen.

47. The pharmaceutical composition of Claim 41 wherein both X' and X'' are nitrogen.

48. The pharmaceutical composition of Claim 41 wherein X' is OCy where Cy is selected from the group consisting of aryl, substituted aryl, heteroaryl, substituted heteroaryl, non-aromatic heterocyclyl, substituted non-aromatic heterocyclyl, non-aromatic heterocyclalkyl and substituted non-aromatic hetero-cyclalkyl.

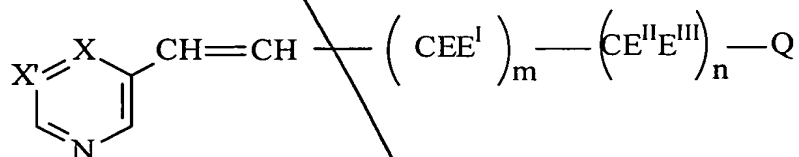
49. The pharmaceutical composition of Claim 41 wherein Q is



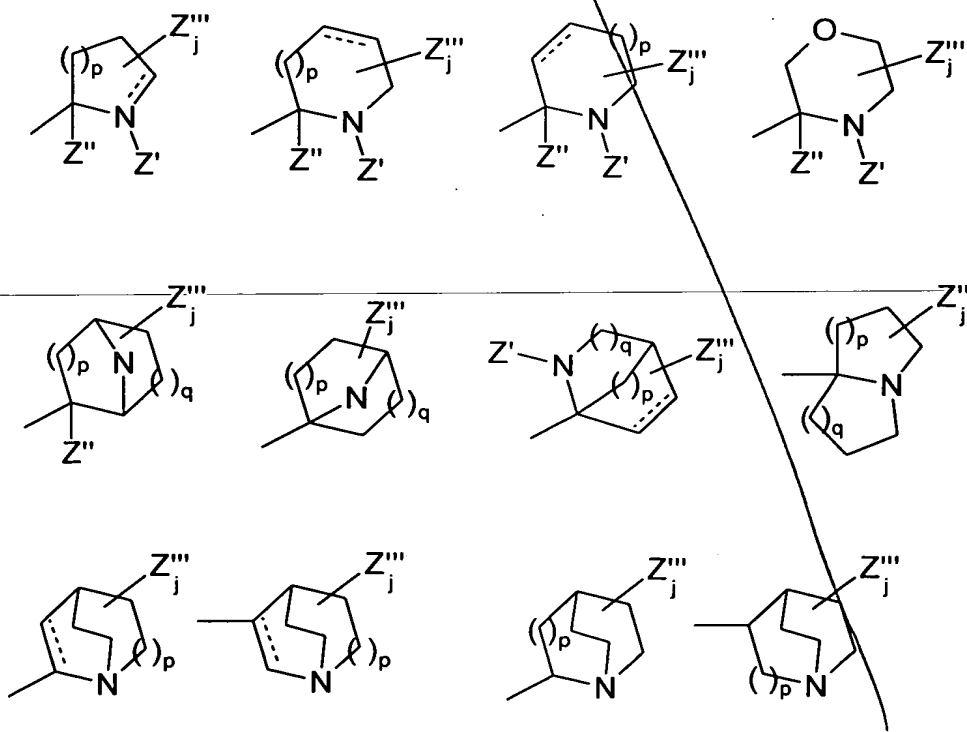
50. The pharmaceutical composition of Claim 41 wherein the compound is selected from the group consisting of (S)-5-(2-pyrrolidin-2-ylethynyl)pyrimidine, (R)-5-(2-pyrrolidin-2-ylethynyl)pyrimidine, (S)-5-(2-pyrrolidin-2-ylethynyl)pyridine, (R)-5-(2-pyrrolidin-2-ylethynyl)pyridine, (S)-3-isopropoxy-5-(pyrrolidin-2-ylethynyl)pyridine, (S)-3-phenyl-5-(pyrrolidin-2-ylethynyl)pyridine, (S)-3-(phenoxyphenyl)-5-(pyrrolidin-2-ylethynyl)pyridine, (S)-3-(4-methoxyphenoxy)-5-(pyrrolidin-2-ylethynyl)pyridine, (S)-3-(4-hydroxyphenoxy)-5-(pyrrolidin-2-ylethynyl)pyridine, (S)-3-cyclopentyloxy-5-(pyrrolidin-2-ylethynyl)pyridine, (S)-3-cyclohexyloxy-5-(pyrrolidin-2-ylethynyl)pyridine, (S)-3-(4-(pyrrolidin-1-sulfonyl)phenoxy)-5-(pyrrolidin-2-ylethynyl)pyridine, (S)-3-(3-pyridyloxy)-5-(pyrrolidin-2-ylethynyl)pyridine, (S)-3-(pyrrolidin-2-ylethynyl)-5-

(tetrahydropyran-4-yloxy)pyridine and (S)-3-(3,5-dihydroxy)phenoxy-5-(pyrrolidin-2-ylethynyl)pyridine.

51. A method for treating a central nervous system disorder, said method comprising administering an effective amount of a compound having the formula:



where each of X and X' are individually nitrogen, nitrogen bonded to oxygen or carbon bonded to a substituent species characterized as having a sigma m value between about -0.3 and about 0.75; m is an integer and n is an integer such that the sum of m plus n is 0, 1, 2 or 3; E, E<sup>I</sup>, E<sup>II</sup> and E<sup>III</sup> individually represent hydrogen or a suitable non-hydrogen substituent; and Q is selected from:



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where Z' individually represent hydrogen or lower alkyl, acyl, alkoxycarbonyl, or aryloxycarbonyl; Z'' is hydrogen or lower alkyl; and Z''' is a non-hydrogen substituent, the dotted line indicates a carbon-carbon single bond or a carbon-carbon double bond; p is 0, 1 or 2; q is 0, 1, 2 or 3; and j is an integer from 0 to 3.

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52. The method of Claim 51 wherein X' is OCx where Cx is selected from the group consisting of aryl, substituted aryl, heteroaryl, substituted heteroaryl, non-aromatic heterocyclyl, substituted non-aromatic heterocyclyl, non-aromatic heterocyclylalkyl and substituted non-aromatic heterocyclylalkyl.

53. The method of Claim 51 wherein Cx is phenyl or substituted phenyl.

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54. The method of Claim 51 wherein j is 0.

55. The method of Claim 51 wherein q is 0 or 1.

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56. The method of Claim 51 wherein Z' is hydrogen or methyl and Z'' is hydrogen.

57. The method of Claim 51 in has an (E) geometry.

58. The method of Claim 51 wherein m and/or n are 0.

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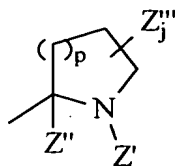
59. The method of Claim 51 wherein m is 1 and n is 0, and E is hydrogen and E<sup>I</sup> is methyl.

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60. The method of Claim 51 wherein m is 1 and n is 1, and E, E<sup>I</sup> and E<sup>II</sup> each are hydrogen and E<sup>III</sup> is methyl.

61. The method of Claim 51 wherein the sum of m plus n is 1 or 2.

62. The method of Claim 51 wherein Q is

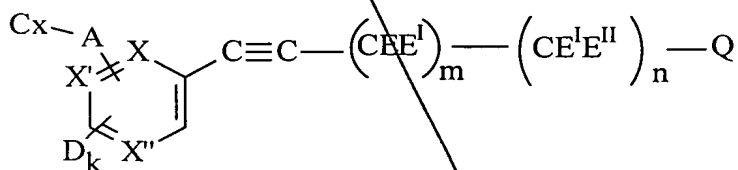


63. The method of Claim 51 wherein the compound is, (S)-(E)-3(2-pyrrolidin-2-ylvinyl) pyridine.

64. The method of Claim 51 wherein the compound is, (E)-(S)-3-(4-hydroxyphenoxy)-5-(pyrrolidin-2-ylvinyl)pyridine.

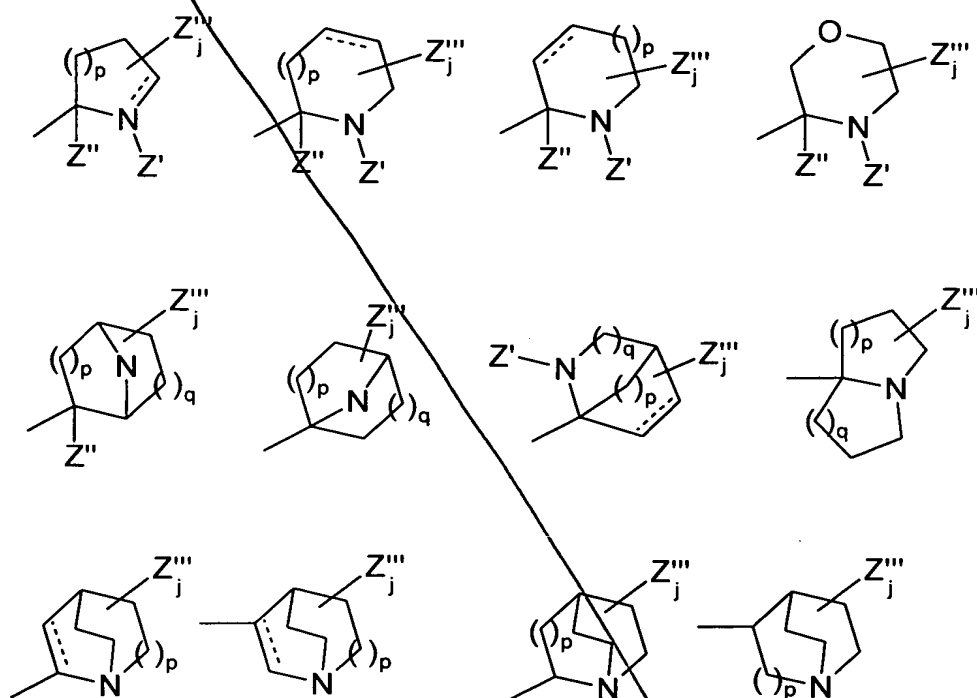
65. The method of Claim 51 wherein the compound is, (E,S)-3-cyclopentyloxy-5-(pyrrolidin-2-ylvinyl)pyridine.

66. A method for treating a central nervous system disorder, said method comprising of the administration of an effective amount of a compound having the formula:



where each of X, X' and X'' are individually nitrogen, nitrogen bonded to oxygen or carbon bonded to a substituent species characterized as having a sigma m value between about -0.3 and about 0.75; A is O, C=O or a covalent bond; D is a suitable non-hydrogen substituent species characterized as having a sigma m value between about -0.3 and about 0.75; k is 0, 1 or 2; Cx is selected from a group consisting of aryl, substituted aryl, heteroaryl, substituted heteroaryl, non-aromatic heterocyclyl, substituted non-aromatic heterocyclyl, non-aromatic heterocyclylalkyl and substituted non-aromatic hetero-cyclylalkyl; m is an integer and n is an integer such that the sum of m

plus n is 0, 1, 2 or 3; E, E<sup>I</sup>, E<sup>II</sup> and E<sup>III</sup> individually represent hydrogen or a suitable non-hydrogen substituent; and Q is selected from:



- 5 where Z' individually represent hydrogen or lower alkyl, acyl, alkoxycarbonyl, or aryloxycarbonyl; Z'' is hydrogen or lower alkyl; and Z''' is a non-hydrogen substituent; the dotted line indicates a carbon-carbon single bond or a carbon-carbon double bond; p is 0, 1 or 2; q is 0, 1, 2 or 3; and j is an integer from 0 to 3.

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67. The method of Claim 66 wherein X'' is nitrogen bonded to oxygen.
68. The method of Claim 66 wherein X'' is nitrogen.
- 15 69. The method of Claim 66 wherein 1 or 2 of X, X' and X'' are nitrogen or nitrogen bonded to oxygen.
70. The method of Claim 66 wherein one of X, X' and X'' is nitrogen bonded to oxygen.

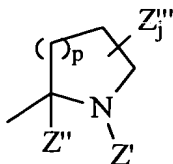
71. The method of Claim 66 wherein X" is nitrogen.

72. The method of Claim 66 wherein both X' and X" are nitrogen.

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73. The method of Claim 66 wherein X' is OCy where Cy is selected from the group consisting of aryl, substituted aryl, heteroaryl, substituted heteroaryl, non-aromatic heterocyclyl, substituted non-aromatic heterocyclyl, non-aromatic heterocyclylalkyl and substituted non-aromatic hetero-cyclylalkyl.

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74. The method of Claim 66 wherein Q is



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75. The method of Claim 66 whereing the compound is selected from the group consisting of (S)-5-(2-pyrrolidin-2-ylethynyl)pyrimidine, (R)-5-(2-pyrrolidin-2-ylethynyl)pyrimidine, (S)-5-(2-pyrrolidin-2-ylethynyl)pyridine, (R)-5-(2-pyrrolidin-2-ylethynyl)pyridine, (S)-3-isopropoxy-5-(pyrrolidin-2-ylethynyl)pyridine, (S)-3-phenyl-5-(pyrrolidin-2-ylethynyl)pyridine, (S)-3-(phenoxyphenyl)-5-(pyrrolidin-2-ylethynyl)pyridine, (S)-3-(4-methoxyphenoxy)-5-(pyrrolidin-2-ylethynyl)pyridine, (S)-3-(4-

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hydroxyphenoxy)-5-(pyrrolidin-2-ylethynyl)pyridine, (S)-3-cyclopentyloxy-5-(pyrrolidin-2-ylethynyl)pyridine, (S)-3-cyclohexyloxy-5-(pyrrolidin-2-ylethynyl)pyridine, (S)-3-(4-(pyrrolidine-1-sulfonyl)phenoxy)-5-(pyrrolidin-2-ylethynyl)pyridine, (S)-3-(3-pyridyloxy)-5-(pyrrolidin-2-ylethynyl)pyridine, (S)-3-(pyrrolidin-2-ylethynyl)-5-(tetrahydropyran-4-yloxy)pyridine and (S)-3-(3,5-dihydroxy)phenoxy-5-(pyrrolidin-2-ylethynyl)pyridine.

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